**CIWC EXHIBIT 3.0AS**

# CONSUMERS ILLINOIS WATER COMPANY

## ADDITIONAL SUPPLEMENTAL TESTIMONY

## OF

## CRAIG M. CUMMINGS

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## WITNESS IDENTIFICATION AND BACKGROUND

**Q. Please state your name and business address.**

A. Craig M. Cummings, 322 North Gilbert Street, Danville, Illinois, 61834.

**Q. Are you the same Craig M. Cummings who submitted Revised Direct Testimony and Supplemental Testimony in this proceeding?**

A. Yes, I am.

## PURPOSE OF ADDITIONAL SUPPLEMENTAL TESTIMONY

**Q. What is the purpose of your Additional Supplemental Testimony?**

A. The purpose of my Additional Supplemental Testimony is to address certain questions raised in this matter by the Administrative Law Judge.

**Q. Mr. Cummings, at pages 4 through 7 of your testimony, you discuss the needs of the Vermilion County Division with respect to Infrastructure investment in coming years. In your view, do each of the categories of plant investment that you discuss constitute qualifying infrastructure plant ("QIP") as defined in proposed Part 656?**

A. Yes. The criteria for qualification as QIP are set forth in Section 656.40 of Part 656, which is attached to Staff Exhibit 1 as Attachment A (pages 4-5). My Additional Supplemental Testimony further addresses six areas of the QIP program of the Vermilion Division: (1) Private Water Lines; (2) Replacement of Undersized and Aged Water Mains; (3) Fire Hydrants Attached to Undersized Water Main; (4) Distribution

System Caused Water Quality and/or Low Pressure Complaints; (5) Replacement of Service Lines; and (6) Replacement of Old and Non-Remoted Water Meters. Below, I will discuss why each of the programs constitutes QIP as defined in proposed Part 656.

(1) Private Water Lines and Undersized and Aged Water Mains.

Private water lines are located throughout the Division service area. A discussion concerning private water lines is provided in my Revised Direct Testimony at page 4, lines 11-26 and page 5, lines 3 through 18. Undersized and aged water mains are addressed in my Revised Direct Testimony at page 5, lines 27 and 28, continuing to page 6, lines 1 through 9. All of the main replacement projects (private line and undersized) are listed in CIWC Exhibit O. This Exhibit is contained in Exhibit 3.2, sponsored in my Direct Testimony. These projects meet the criteria for Part 656 for the following reasons: (1) the replacement mains are recorded in Account 331, Transmission and Distribution Mains; (2) the additions replace existing plant items; (3) the replacement plant is non-revenue producing; (4) the replacements are installed to replace facilities that are worn out or deteriorated or replace facilities that are obsolete and at the end of their useful service life due to a change in law or regulations of a governmental agency; (5) the additions will be installed after completion the CIWC's last water rate case; and (6) the replacement facilities were not included in rate base during the last water rate case. In addition, as will be discussed, certain of the replacement mains eliminate dead-end mains. Also, all of the replacements are installed after January 1 of the year (2001) when CIWC filed its QIP Surcharge rider. Thus, all of the projects qualify for inclusion as QIP under Part 656.40. The following information supports this position:

- The projects in Exhibit O primarily deal with undersized water mains of various ages. Fully 75% (72 of 96) of the projects listed in Exhibit O deal with the replacement of 1 inch water "mains", a term that applies in a broad sense to these undersized facilities. These water "mains" serve multiple households and cannot provide adequate pressure when more than one household is using water at a time. In fact, the minimum size "service" line now required by the applicable rules to serve a single family home in the service area is one inch. This is mandated by the Illinois Plumbing Code (77 Illinois Administrative

Code, Part 890, Section 890.1200a, Appendix A, Tables M and N). Of the remaining 24 projects in Exhibit O, 5.2 percent (5 of 96) involve 2-inch water mains, 1 percent (1 of 96) involve a 2½-inch water main, 5.2 percent (5 of 96) involve 3 inch water mains, and 13.5% (13 of 96) involve 4 inch water mains. None of the projects listed meet the current ICC minimum water main size requirements (8 inch) or even the IEPA standard of 6 inches. The regulations of the ICC and IEPA were not in existence when the undersized facilities were installed.

- ✍ The majority of these water mains cannot provide the water volume necessary to adequately serve residential customers with domestic use let alone provide fire protection. Therefore the areas served by these water mains are deficient in fire protection. The mains being replaced do not meet the "Ten State Standards" as adopted by IEPA. The mains also do not meet the standards of 83 Ill. Adm. Code, Part 600.230(a), which require that utility facilities provide "a continuous and adequate supply of water at reasonable pressure." The mains also do not satisfy the flow requirements of 83 Ill. Adm. Code, Part 600.230(b).

- ✍ The projects in Exhibit O are generally constructed of unlined cast iron pipe, which is inherently subject to accelerated corrosion and red water problems. The Company also is aware through its annual flushing program (if a fire hydrant is available to flush), that these mains have developed excessive oxidized iron (rust). Thus the "mains" are worn out and deteriorated.

- ✍ The projects in Exhibit O include projects that involve dead-end water mains. Dead-end water mains should be eliminated not only to improve distribution system gridding for fire flows and to prevent the degradation of water quality due to stagnation, but also because they are prohibited by the Illinois Plumbing Code (77 Illinois Administrative Code, Part 890, Section 890.1200c).

(2) Fire Hydrants Attached to Undersized Water Mains

Of the 1,428 hydrants in the Division, 51 – or 3.6 percent – are attached to obsolete water mains that are four inches in diameter. As the four-inch water mains are replaced with adequately sized water mains that meet the Commission minimum water main size requirements, the hydrants will be replaced as well. Since the hydrants are attached to these undersized water mains, they are capable of providing only minimal flows. The hydrants are two-way models (two 2½ inch hose nozzles) as opposed to modern three-way (the two 2½ inch hose nozzles and a 4-inch pumper nozzle) hydrants. Additionally, most of these two-way hydrants do not have an auxiliary valve that would

allow the hydrant to be isolated from the water main for maintenance without necessitating a main line shut down. There are a few instances, however, where obsolete hydrants will be replaced prior to the undersized, non-compliant water main being replaced. An obsolete fire hydrant at an intersection where an undersized, non-compliant water main and a properly sized adequately performing water main intersect might be replaced by installing a new fire hydrant on the larger water main and abandoning the obsolete fire hydrant. Thus, fire protection is improved without radically altering hydrant spacing.

The fire hydrants replacements meet the criteria of Part 656 for the following reasons:

- Low flow fire hydrants are indicative of inadequate supply to the hydrant. Thus, the water main supplying the fire hydrant is worn out or deteriorated and, therefore, does not supply customers with water for general use during fire-flow conditions or adequate flows for fire protection. Low flow hydrants are not viewed as a separate problem; rather they are replaced in conjunction with replacement of the obsolete water mains that serve them. Furthermore, low flow hydrants (<500 gpm delivery rate) are determined to be inadequate by the Insurance Services Office (ISO) and National Fire Protection Association (NFPA), whose standards have been adopted and enforced by the City of Danville.

- Mains with low flow or no hydrants are generally undersized mains of 4-inch size or less. These mains are obsolete, and moreover are providing inadequate fire protection to areas of the distribution system, which is of concern to governmental agencies. Such facilities do not meet the requirement of 83 Ill. Admin. Code, Part 230(a).

- These hydrants do not have auxiliary valves, which allow the hydrant to be isolated from the distribution system to allow them to be serviced or repaired without inconveniencing customers with a service interruption due to a water main shutdown. This inadequacy indicates a deteriorated condition as well and is in violation of City of Danville standards.

Hydrant replacement costs are recorded in Account 335.

(3) Distribution System Caused Water Quality and/or Low Pressure Complaints.

Distribution system-caused water quality and/or low pressure complaints are attributed to the causes listed at page 6, lines 14–17 of my Revised Direct Testimony. Each of these causes is discussed in my response in (1) above. The projects listed on Exhibit O of CIWC Exhibit 3.2, which were discussed above, are the projects that will be undertaken initially to address these concerns. As indicated above, those replacement projects qualify as QIP. As will be discussed, other causes of distribution system problems exist and those causes will be addressed as resources permit.

(4) Replacement of Service Lines.

Services are an integral part of the Distribution System and for that matter, the QIPS program. Services connected to aged, undersized, unlined water mains are generally of the same vintage of the water main. Because water use was not as intensive when they were originally installed, they are generally undersized per the Illinois Plumbing Code (77 Illinois Administrative Code, Part 890, Section 890.1200a, Appendix A, Tables M and N). Additionally, the materials used are usually galvanized steel, which generally has a life span of less than 50 years, or lead. Since the service lines are generally undersized and not constructed of modern plumbing materials, (soft copper or polyethylene), they are replaced when a water main is replaced. In other words, services are not targeted to be replaced in a random, geographically dispersed fashion; rather they will generally be replaced in a very focused, location-specific manner at the time that the obsolete water main is replaced. Also, due to the placement of the new water main, services must be replaced because the replacement water main is constructed in a different location than the existing water main. Replacement water mains are generally parallel to the existing main, but normally at a different depth or horizontal separation. Since the location of the water main has changed, service lines would need to be replaced to avoid any splices of a new service line to an existing service line. Splices only increase the likelihood of leaks developing at some point in the future.

As indicated above, the mains replaced through the projects detailed in Exhibit O contained in Exhibit 3.2, are of an age that lead service lines are often attached to the water mains. With the USEPA Lead and Copper Rule ("LCR") that became effective in the early 1990's, water utilities have been working to remove sources of lead from their distribution systems. The Vermilion Division has an active program to replace lead service lines in the system in conjunction with the replacement of obsolete mains. In addition, many of the water mains are connected with lead or leadite joints, which provide another source of lead that must be removed from the distribution system under present-day environmental regulations. The Division has no detectable level in the water pumped to the distribution system from the treatment facility; therefore, the removal of lead service lines is a program used by the Division to ensure that sources of lead contamination are minimized. The presence of lead in samples collected from customers' home is not the result of source water contamination, rather it has leached into the water from plumbing materials. The Company has detected lead in some samples taken from customers homes in every round of sampling since the LCR become effective.

In order to remain in compliance with the LCR, the Company must remain vigilant with respect to optimizing corrosion control treatment (to minimize leaching) while eliminating the root cause of the problem, lead in the distribution system. The replacement services are recorded in Account 333. For all of these reasons, the service replacement projects qualify as QIP.

(5) Replacement of Old and Non-Remoted Water Meters.

The replacement of old and non-remoted water meters is addressed in my Revised Direct Testimony at page 7, lines 4–9. As indicated, the meters that will be replaced are over 20 years old, non-remote meters or generator remote meters. Meters in service for over twenty years do not meet minimum ICC or industry accuracy standards based upon testing experience in the Division. Furthermore, non-remoted, inadequately remoted, and generator remoted meters are obsolete or at the end of their useful life, based upon meter

reading technologies now readily available. All of the meters being replaced are worn out or deteriorated. Meter replacements are recorded in Account 334. For these reasons, the meter replacement projects qualify as QIP.

**Q. For the QIP areas you discuss, would you describe the facilities that will be used for the replacement?**

A. The replacement materials for each QIP area (by account) are as follows:

Account 331: T&D mains – All replacement mains will be 8" cement lined ductile iron pipe, except for three projects previously addressed. The use of 8" main is the standard approach under the ICC's Main Extension Rule (unless a larger main is required by sound engineering practice). As discussed below, a larger main will be installed where appropriate.

Account 333: Services – Replacement Services will be 1" soft copper except where customer needs (based upon service sizing calculations) dictate a larger service line. The replacement services will be consistent with provisions of the Illinois Plumbing Code.

Account 334: Meters – Replacement meters will be like-size positive displacement meters capable of electronic or radio remoting.

Account 335: Hydrants – Replacement hydrants will be 5¼" barrel, 3-way hydrants connected to a 6" hydrant branch with an auxiliary valve. The replacement hydrants are consistent with standards of the City of Danville.

All of the replacement facilities will meet applicable present day regulations and service requirements.

**Q. With respect to the replacement of mains, how is it determined what size main would replace existing lines?**

A. The water main size used to replace the water mains listed in the projects in Revised Exhibit P of my Supplemental Direct Testimony for years 2000-2005 are 8" water mains, with three exceptions that I will discuss later.

The Private Line Replacement Program, which was the result of a negotiated settlement between the Division and the Commission, clearly indicated that undersized, private water lines would be maintained by the Division until such time as they were replaced by properly sized water mains. In the QIP program, this will be done with 8" water mains that meet the Commission minimum water main size requirement.

Furthermore, the Division's Program for Replacement of Undersized and Aged Water Mains contemplates replacing all targeted water mains with the same Commission minimum water main size (8") unless there is a compelling reason to vary from this standard.

In the case of the projects listed in Revised Exhibit P of my Supplemental Direct Testimony, only three water main replacement projects have greater than 8" water mains scheduled to replace the undersized water mains. In 2003, the "Daisy Lane" project involves replacing a 3" water main that currently connects two 12" water mains. The project simply completes the connection of the two 12" water mains – one headed north, the other south – on Daisy Lane. The 12" on Daisy Lane is necessary to provide a north/south distribution grid reinforcement in this area. There is a large geographical area (approximately 1.1 square miles) where there is no adequately sized water main that connects the water mains to the north and south. Sound engineering practices indicate the 12" water mains that already exist on Daisy Lane should be connected.

In 2004, the "Vance Lane" water main replaces a 2" water main by extending an existing 12" water main to the next street intersection. The 12" water main will terminate at the intersection where a 16" water main will eventually be extended. This will provide

distribution grid reinforcement to the area noted as problematic at page 6, lines 18-22 in my revised direct testimony.

In 2005, the "Brewer Road" project replaces approximately three miles of 6", 4", 2.5" and eventually 1" water line. The majority of this waterline is galvanized Civilian Conservation Corps constructed waterline that was built in the early 1930's. It is the only supply line to the area south of Interstate 74. In order to adequately serve this area due to the number of customers served, the length of the line, and the Interstate crossing, a 12" water main will replace the undersized waterlines.

**Q. Are the replacement mains sized to meet demands beyond the existing demands on the system?**

A. No. The mains: a) meet the Commission minimum water main size requirements (8"); b) are larger if required by sound engineering practice; and c) are sized to meet existing demands.

**Q. Also, at page 6, lines 13-15, you discuss reasons why water quality and/or low-pressure complaints are encountered in specific areas. Does this list include all of the reasons for the water quality or low-pressure complaints?**

A. No. The reasons listed at page 6, lines 13-15 in my Revised Direct Testimony were intended to be illustrative of the distribution system induced problems, not all inclusive. Other reasons for distribution system caused water quality and/or low-pressure complaints include water mains that have long stretches of pipe with no fire hydrants, meaning flushing to remove accumulated rust and sediments cannot be facilitated. Undersized water mains can, during normal operating conditions, be prone to low pressure complaints, but due to their inadequate size, velocities necessary to scour the mains (if hydrants are available to flush) are not achievable. Thus, during routine flushing, rust and sediment may be suspended in the water, but are never thoroughly

removed. Water mains with an excessive history of breaks can be subject to both water quality complaints (changing pressure/flow, causing sediments to be suspended) and low pressure complaints (valving to facilitate repairs, causing pressure declines).

It should be noted, however, that not all water quality and/or pressure complaints are caused by the distribution system. Some complaints may be the result of extreme system demands (fire flows, summertime water demands), system maintenance such as a water storage tank being out of service for painting, or the inadvertent, yet incomplete, flushing of water mains, such as during a major fire, when street sweepers fill from a fire hydrant, or flushing a water main extension after construction.

**Q. Please discuss the replacement rate data shown in CIWC Exhibit 3.1.**

A. This data is responsive to the requirements of Section 656.90(b) of proposed Part 656. Section 656.90(b)(1) requires a five-year history of current replacement rates of qualifying plant, and Section 656.90(b)(6) requires that utilities proposing to use the annual prospective method for the QIP Rider provide explanations for any changes in expected rates of investment in QIP for the forecasted period as compared to the historical period.

**Q. For what time periods is replacement data provided?**

A. In accordance with the rule, Exhibit 3.1 provides replacement data for five historical years ended with the year 2000. The Exhibit also provides forecasted replacement rates for the years 2001 and 2002. In the present case, year 2002 is the forecasted period.

**Q. On Exhibit 3.1 you show a replacement rate for the year 2002 for mains 4 inches of diameter and less of 3.75. Can you explain how that rate was developed?**

A. Yes. The replacement rate for all water main sizes was calculated by using the "miles of main in use" figure as of the year 2000, and dividing it by miles of main replaced. This

figure is then expressed as a percent by dividing it into 100. As this is a prospective calculation, it should be noted that the "miles of main in use" figure remained constant for current year (2001) and the prospective year (2002).

**Q. Is the data shown on Exhibit 3.1 affected by the QIP programs you have previously discussed?**

A. Yes. The QIP Program involves replacement of facilities that are worn out or obsolete. As the program is implemented, it is expected that replacement rates for the categories of plant facilities that are involved should increase. For the accounts shown, account #331 – T&D mains, and account #334 – meters, both show an increase in replacement rates due to the QIP program projects. Accounts 335 – hydrants, remains constant, and account 333 – services, show a slight decline. The projects planned for construction in 2002 under QIP program (as contained in Revised Exhibit P contained in CIWC Exhibit 3.2) are located in areas where home density is lower than other parts of the service area. Since the replacement rate of services will be largely driven by the replacement rate of water mains, a slight variation in the replacement rate is expected. Service "density" along replaced main will be the major driver for this account.

**Q. At page 8, you make reference to a replacement cycle for meters that is somewhat higher than the ten-year testing schedule established by the Commission. You conclude that the replacement rate will increase to reach the ten-year testing schedule. Would you explain the connection between the testing schedule and replacement of the meter?**

A. Yes. In order to replace generator-driven remote meters, non-remoted meters, meters in continuous service over 20 years and inadequately remoted meters, the Company will be increasing the meter replacement rate. These meters are worn out and obsolete. Generator-driven remote meters are so prone to remote failure that the Commission

requires the meter integrator to be matched with the remote integrator at least one per year. This manual, cumbersome process requires a qualified individual to actually view the meter and record the reading, thereby neglecting the "remote" reading feature at least once per year. The non-remoted meters are not capable of being read remotely and are of an age that they are worn out. Inadequately remoted meters are those that may be remoted, but because of the location of the meter (in meter wells) and the remoting technology ("touch read" whereby physical contact must be made with the electronic sensor) they cannot be read at all for several months each year. Leaves and snow covering the meter well lid make it impossible to read those meters remotely. As these meters are replaced, their replacement will, in part, work to reach the testing cycle established by the Commission. In other words, with the goal of the meter testing program being to ensure accurate meters are installed, the replacement of obsolete meters with new, accurate meters will address this issue. The QIP program will, by allowing replacement of obsolete meters, enable the Company to meet the testing cycle.

**Q. In Exhibit 3.3, you set forth billing comparisons for the Vermilion County Division. Is that correct?**

A. Yes.

**Q. Would you explain the method used to develop this Exhibit?**

A. The bill comparisons shown in CIWC Exhibit 3.3 meet the requirements of a Staff Data Request, which directed as follows:

> a) Show the effect of the QIP surcharge for each class of customer at the average customer usage level, and at five usage levels above the average customer usage level, and at five usage levels below the average customer usage level.

b) The bill comparisons shall present the current total bill, the proposed total bill, the difference between current and proposed total bill, and the percentage change between current and proposed total bill.

c) Provide a supporting schedule showing the billing units, charges, and revenues used in calculating the bill comparison.

d) For the Kankakee Division, please base the fire protection revenues on the City of Kankakee public fire protection rates. For the Vermilion Division, please base the fire protection revenues on the Danville public fire protection rates.

In developing the exhibit, the Company followed the instructions specified.

**Q. How was the average usage determined?**

A. The average usage was determined by dividing the annual total of hundreds of cubic feet for each customer class by the respective number of customers in that class divided by 12 to yield an average monthly consumption for the class.

**Q. Under proposed Part 656, who determines whether a given project qualifies for QIP?**

A. The determination is made initially by the utility in conjunction with the filing of the Information Sheet for a particular operation year. The utility's determination is subject to review, however, by Staff and the Commission in conjunction with annual reconciliation hearings. Any revenue collected by the QIP Rider which did not properly reflect actual cost related to qualifying infrastructure plant would be subject to refund through either the R or O component of the Rider.

**Q. Does this conclude your testimony?**

A. Yes, it does.